TECHNICAL REPORT
NATICK/TR-92/034

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THE EFFECT OF CONSUMER-ORIENTED PACKAGING DESIGNS ON ACCEPTANCE AND CONSUMPTION OF MILITARY RATIONS

by
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May 1992

Final Report
March 1991 - March 1992

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REPORT DOCUMENTATION PAGE

Form Approved
OMB No 0704-0188

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	May 1992	FINAL-March 1991 - March 1992

4. TITLE AND SUBTITLE
The Effect of Consumer-Oriented Packaging Designs on Acceptance & Consumption of Military Rations

5. FUNDING NUMBERS
PE: 62786
PR: IL162786AH99
TA: BFO
WU: AOO
AG: FEDMSR1531

6. AUTHOR(S)
Joan B. Kalick

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
U.S. Army Natick Research, Development & Engineering Center
Natick, MA 01760-5020
STRNC-YBC

8. PERFORMING ORGANIZATION REPORT NUMBER
NATICK/TR-92/034

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for Public Release, Distribution Unlimited

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

A field survey was conducted with 192 soldiers for the purpose of testing two commercial-like packaging design prototypes against existing ration packaging. The objective was to assess the effect that the new packaging designs have on consumption and acceptability of a military ration. An identical MRE meal which was packaged in three different package designs, one resembling a Meal, Ready-to-Eat package, was evaluated by three groups of soldiers situated in three different field locations. Soldiers were also issued a packaging questionnaire that related to the functionality, appearance, naming, graphics and labelling of the outer and inner packages. Results indicate that commercial-like packaging can influence acceptability of the ration, as well as nonfood aspects of the ration system.

14. SUBJECT TERMS

RATIONS	FOOD ACCEPTANCE	SOLDIERS
MILITARY RATIONS	PACKAGING	POUCHES
FOOD CONSUMPTION	PROTOTYPES	MEALS

15. NUMBER OF PAGES
66

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNLIMITED

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PREFACE

This test was the third phase of recent packaging research conducted to help create a more positive image of military rations and promote greater acceptance and consumption of rations by soldiers. In the first phase, a series of qualitative research studies was conducted to: (1) design concepts, graphic layouts, and packaging prototypes to promote positive package appeal and (2) identify critical characteristics of ration packaging that may enhance consumer trial and consumption of new rations. Based on research with soldier groups at Ft. Devens, MA, ideas for colors, names, informational labels, shapes and sizes for foods, and package designs were generated and used to develop the final graphic layout and several mockup designs for the packages. Three final packaging prototypes were designed for testing in phase two.

In the second phase of research, a quantitative study was conducted with 183 soldiers at Ft. Ord, CA. The purpose of the study was to (1) identify graphic design concepts for ration packaging to enhance their appeal to soldiers; (2) create ration packaging prototypes to measure the impact of package design on product perception; and (3) test these packaging prototypes against existing ration packaging.

Results of this phase of research revealed that a ziplock package design rated significantly higher in both functionality and appearance attributes. The three newer packages also resulted in significantly higher ratings of the food products inside the packages, even though subjects never actually tasted the food. Food was perceived as being likely to be better tasting, contain higher quality ingredients, be more appetizing, and more likely to be made by a reputable company. The food contained in plastic ziplock pouches was also perceived as significantly fresher tasting, easier to clean up and more natural looking than food contained in either a paperboard box or the standard Meal, Ready-to-Eat, (MRE).

With this background, the objective of the third phase of research was to assess the effect that commercial-like packaging had on the actual consumption and acceptability of military rations.

Research for this phase of the study took place during the period of March 1991 to March 1992.

ACKNOWLEDGEMENTS

I wish to thank the project officers of Natick's Food Engineering Directorate and other personnel who helped produce the components and the inner packages to be evaluated. They include the following: CW2 Mike Acheson, Alan Bennett, Dan Nattress, Cathy Porcella, and Valerie Klingman. I would also like to thank Jay Jones and Jim Herne for packing and shipping the packages.

Special thanks go to the following personnel in the Soldier Science Directorate: Mrs. Ruth Roth and Mr. Robert Kluter for helping conduct the field survey, Larry Lesher for his support in data analyses, and Mr. Michael Rosebury for computer graphic support.

THE EFFECT OF CONSUMER-ORIENTED PACKAGING DESIGNS ON ACCEPTANCE AND CONSUMPTION OF MILITARY RATIONS

INTRODUCTION

Military rations suffer from a negative stereotype that has evolved over time. The vast majority of research efforts have focussed on improving the ingredients, processing and sensory aspects of the product. Little research has been undertaken to improve package appeal in order to increase overall acceptance and/or consumption. Due to logistical requirements of low weight, low volume, and long shelf stability, combat rations utilize novel ingredients and processing techniques that sometimes result in unconventional sensory properties that may affect troop acceptance and field intake. Innovative technologies may be utilized in designing the rations, but if the troops are not fully satisfied with the rations and consume them in insufficient amounts, the innovative technology is wasted.

To overcome this problem, in-house marketing strategies were developed to determine if packaging designs similar to those used commercially can promote greater acceptance and consumption. While industry has repeatedly shown that creating appealing graphics, beneficial information, and innovative structural elements are major factoirs that encourage product usage, little research has been done with military rations. Recently, however, several laboratory studies have been conducted showing that both military rations and commercial foods, when presented to subjects in ether traditional military packages or commercial brand packages, are rated higher in acceptability and/or consumed in greater amounts in commercial packages (Cardello et al. 1985; Kramer et al. 1989; Kalick and Cardello, 1991). Although the mechanism by which such effects may operate are complex, the existing data are consistent with the notion that attractive, commercial-like packaging introduces a positive expectation for the food inside the package. Through the mechanism of "assimilation", the perceived acceptance of the food is increased in the direction of elevated expectation (Cardello, 1992).

The present study was an outgrowth of qualitative market research that led to the development of novel, commercial-like package designs for rations (Kalick, 1991). It is the first attempt of its kind to show the effect of packaging on field acceptance/consumption.

METHOD

Background: A limited field test was conducted with soldiers at Ft. Campbell, KY in December 1991 to evaluate the consumption and acceptability of MRE meals packaged in three different systems of ration packages. The objective of the study was to assess the effect that commercial-like packaging has on consumption and acceptability of a military ration. Two packages were designed with commercial-like colors and graphics. The third package was the color and design of the present MRE pouch. All packages had a ziplock closure, tear strip, and the ration name "FIELD BREAK" on them.

Subjects: A total of 192 soldiers from the 1st Brigade of the 101st Airborne Division (Air Assault) at Ft. Campbell, Kentucky participated in a lunch study conducted in three different field locations. The soldiers had been on field manuevers for two weeks prior to the study. The soldiers were unaware of the nature of the test or the fact that there were three different packaging designs being used by different groups in the test.

Materials: The three packaging systems are shown in Figures 1-3. They include the following:

1. "Field" Package - a medium shade of olive green, ziplock pouch with the FIELD BREAK logo printed in yellow. MENU THREE was printed in white on a dark green background. The food contents were listed below the menu number, in yellow. The inner packages were either foil or transparent, depending upon the item, except for the "off-shelf" commercial items. The labels on the inner packages were printed in black, with a commercial-like font.

2. "Desert" Package - a beige ziplock pouch with the FIELD BREAK logo printed in light tan from the bottom to the top of the bag. A bullet on the top right side stated "A well-balanced and complete meal!" The name CHICKEN STEW was printed in green on the right side, along with the other food contents. The inner packages were the same as for the "FIELD" package. The inner package labels had a shiny, white background with brown-tone lettering. The item name descriptions were printed in a commercial-like font.

3. "MRE" Package - This package was designed to be identical in appearance to the current MRE package. It was dark brown with black lettering and had the words FIELD BREAK, MENU NO. 3, CHICKEN STEW, ACCESSORY PACKET B, printed in a repeat pattern from top to bottom. The inner packages were identical to those in the standard MRE, with labels printed in black lettering. The food name descriptions on the labels were identical to the standard MRE.

FIGURE 1. Field Package

FIGURE 2. Desert Package

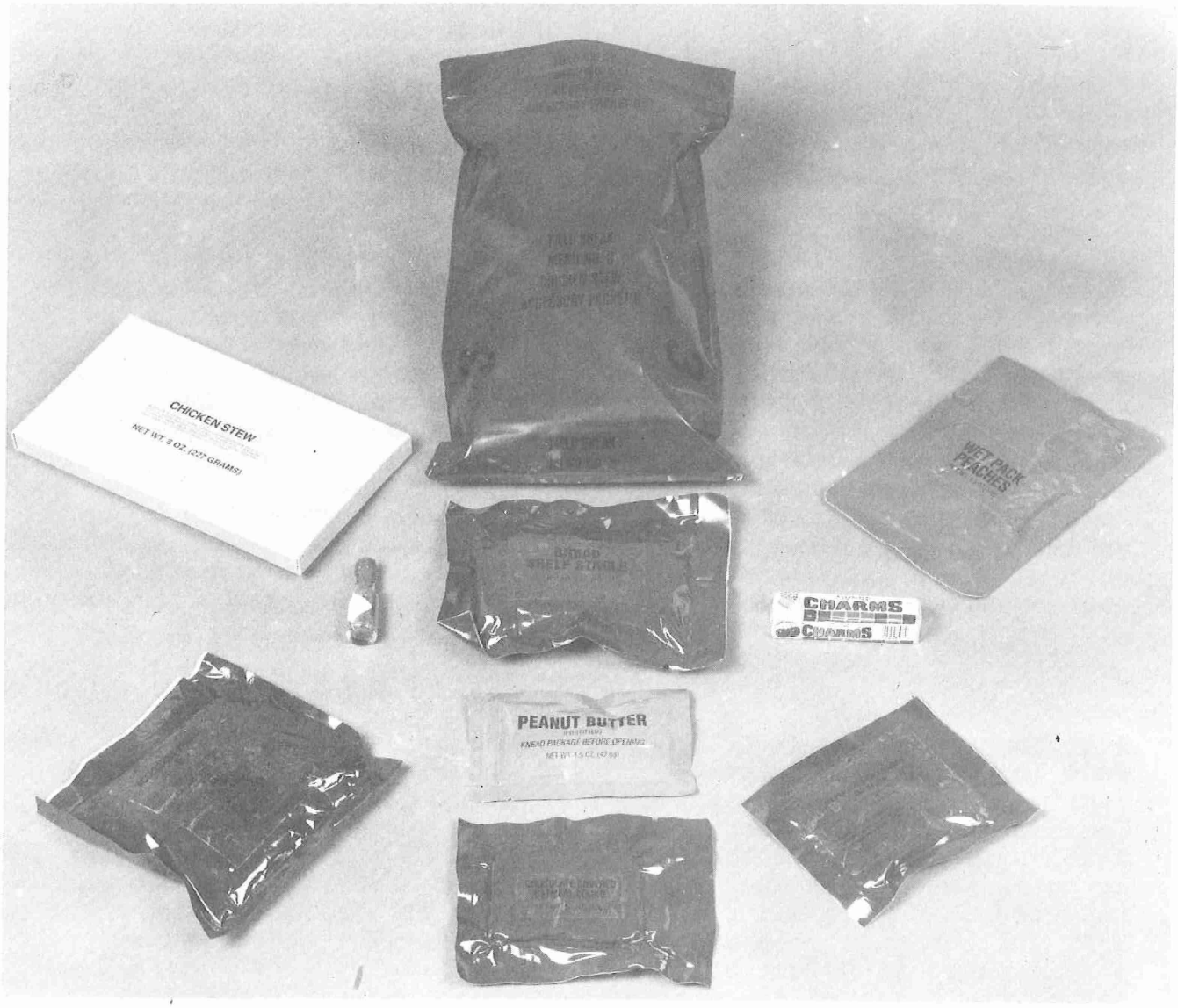

FIGURE 3. Meal, Ready-to-Eat (MRE) Package

Procedure: Between 1100 and 1145 hours each of the three groups of soldiers reported to a different field area, typical of the environment commonly used for meal consumption, where they were briefed and participated in the study. The same instructions and tasks were read to each group of soldiers. A brief description of the tear strip and ziploc closure of the bags was also read to familiarize participants with this aspect of the packaging. The flameless ration heater was shown, and instructions on its use were read to the groups. Upon completion of the briefing, each group was issued one of the three ration packages, along with an acceptance/consumption questionnaire, one flameless ration heater and its associated instructions. All ration packages contained an identical MRE meal consisting of: chicken stew, orange beverage, Tootsie Roll™, Charms™, coffee, peaches in syrup, chocolate-oatmeal cookie, peanut butter, and pouch bread. Subjects were instructed to complete the questionnaire after eating their meal. The questionnaire asked subjects to evaluate the acceptability of each of the food items, the acceptability of the overall meal, and their satisfaction with the flameless ration heater. The questionnaires are shown in Appendix A. In addition, subjects gave self-reported visual estimates of the amounts of each item consumed. They did this by estimating whether they had eaten "a taste", "1/4", "1/2", "3/4", or "all" of each item, and recording it on their questionnaires. When they completed the meal, the questionnaire was collected and they were furnished with a second questionnaire that addressed their perceptions of and attitudes toward the ration packaging system.

RESULTS AND DISCUSSION

Demographic Profile: Of the 192 soldiers that were surveyed, there were 184 males and 8 females ranging in age from 18 to 45 with an average age of 25. There were 177 enlisted troops and 15 officers. Females and officers were divided evenly among the three groups. Sixty-nine percent of the soldiers reported that they had taken part in 10 or more field exercises in the past 3 years. Sixteen percent reported that they had participated in 5-10 exercises, 5 percent said 3-5, and 10% said only 1-3 field exercises. The majority had participated in Desert Storm. There were no apparent differences on any of the measured demographic variables between the groups.

Prior Food Consumption and Hunger Ratings: Before consuming the meal, soldiers were requested to identify the time that they had last eaten, and whether it was a snack or a full meal. Twenty-seven percent of the soldiers consuming lunch from the standard MRE package had been on maneuvers and were not issued a T-Ration breakfast, as had the other two groups. Because of this, there were differences between the time of last consumption for this group and the other two groups. Table 1 lists the percentage of soldiers falling into each response category for the items of "when last ate (before the lunch evaluation)", and whether they "ate a meal or snack."

Table 1. Length of Time between Last Food Consumption and Lunch Evaluation

MRE		FIELD		DESERT	
Percent	Hours	Percent	Hours	Percent	Hours
20.0%	1	13.2%	1	15.9%	1
4.3%	2	0%	2	0%	2
17.1%	3	5.7%	3	4.3%	3
21.4%	4	35.8%	4	29.0%	4
10.0%	5	34.0%	5	36.2%	5
4.3%	6	7.5%	6	7.2%	6
5.7%	13-17	3.8% missing		1.4%	8
11.4%	18			5.6%	16-19
2.8%	18-24				
3% missing					
52.9% ate a meal		81.1% ate a meal		78.3% ate a meal	
47.1% ate a snack		18.9% ate a snack		20.3% ate a snack	

Before starting the test, soldiers also were asked to state their hunger level on a 5-point rating scale. The scale used and the results obtained are shown in Table 2.

Table 2. Self-reported Hunger Levels

1 NOT AT ALL HUNGRY	2 SLIGHTLY HUNGRY	3 MODERATELY HUNGRY	4 VERY HUNGRY	5 EXTREMELY HUNGRY

Field (N=53)		Desert (N=69)		MRE (N=70)		ANOVA RESULTS
X	SD	X	SD	X	SD	
2.7	.74	2.7	.89	3.1	.95	F(2,189)=4.98*

* Significant Difference, $p \leq .05$

As can be seen in Table 2, the soldiers in the MRE group were hungrier than those in the Field and Desert groups. Differences in mean responses of the 3 groups were evaluated using an ANOVA (analysis of variance). The purpose was to test for significant differences to determine which means were different. The results of Newman-Keuls post hoc test comparisons ($p \leq .05$) indicated significant differences between the MRE group and both the Field and Desert groups. There was no significant difference between the Field and Desert groups. These data are consistent with the subjects' reported number of hours since their last food intake (Table 1). The MRE group went a longer time without food than the other groups.

Acceptability and Consumption Ratings: Each of the three different packages contained the following components: chicken stew, pouch bread, wet-pack peaches, peanut butter, chocolate-covered oatmeal cookie, orange beverage, coffee, Tootsie Rolls™, and Charms™. Each component was rated on a 9-point hedonic scale

(Peryam and Pilgrim, 1957). The scale and ratings for all items across the three different groups can be seen in Table 3.

Table 3 shows significant differences among the groups in the ratings for chicken stew, orange beverage, Tootsie Rolls™, and Charms™. Post hoc comparisons indicated significantly higher ratings in both the Field and Desert groups over the MRE group for both the chicken stew entree and orange beverage ($p \leq .05$). The post hoc analysis for the Tootsie Rolls™ indicated a significant difference between the Field and Desert groups, and the Field and MRE groups. The Tootsie Rolls™ were rated significantly higher by the Field group. There was no significant difference between the MRE and Desert groups. A significant difference was also found between the MRE and Field groups for the acceptability ratings of the Charms™. Charms™ were rated the highest by the Field group. There was no significant difference between the Field and Desert, or Desert and MRE groups. The differences are shown in Figures 4 - 7.

Since packaging was the only difference between the food items in the three groups, the results shown in Table 3 can be interpreted to mean that the commercial-like packages significantly increased the acceptability of the chicken stew entree and beverage over that observed for these products when served in the MRE package. Moreover, the Field package significantly improved the acceptability of the Tootsie Roll™ and Charms™, even though the primary packaging for these two items was their typical commercial brand package. These data suggest that the positive effects on acceptance that are gained by the use of commercial-like secondary packaging can generalize to a broad range of food items contained in the package, extending benefits to even those items that are well-known brand items packaged in their conventional brand packages.

Table 3. Acceptability Ratings of Food Items

DISLIKED EXTREMELY 1	DISLIKED MODERATELY 2	3	NEITHER LIKED NOR DISLIKED 4	5	6	LIKED MODERATELY 7	8	LIKED EXTREMELY 9	
	Field		Desert			MRE		ANOVA RESULTS	
	(N=53)		(N=69)			(N=70)			
	X	SD	X	SD		X	SD		
Chicken Stew F(2,189)=5.07**	6.8	2.1	6.8	1.7		5.8	2.1		
Orange Beverage F(2,186)=8.74**	7.2	1.8	6.6	1.7		5.8	2.1		
Tootsie Roll™ F(2,187)=3.30*	8.2	1.4	7.5	1.7		7.5	2.0		
Charms™	7.2	2.1	6.4	2.3		6.0	2.7	(2,186)=4.02*	

Table 3. Acceptability Ratings of Food Items (cont)

DISLIKED EXTREMELY 1	DISLIKED MODERATELY 2	3	NEITHER LIKED NOR DISLIKED 4	5	6	LIKED MODERATELY 7	8	LIKED EXTREMELY 9	
	Field		Desert			MRE		ANOVA RESULTS	
	(N=53)		(N=69)			(N=70)			
	X	SD	X	SD		X	SD		
Coffee	6.0	2.6	5.9	2.2		5.7	2.7	N.S.D.	
Peaches in syrup	8.4	1.1	8.4	.81		8.2	1.6	N.S.D.	
Chocolate-Oatmeal Cookie	7.4	1.8	7.2	1.5		7.1	1.7	N.S.D.	
Peanut Butter	6.7	2.2	6.6	1.9		6.0	2.2	N.S.D.	
Pouch Bread	7.1	1.4	6.9	1.8		6.9	2.2	N.S.D.	

**Significant Difference, $p \leq .01$
*Significant difference, $p \leq .05$

During the test, soldiers were required to estimate the amount of each item they consumed using a 5-point rating scale ranging from a "taste" to "1/4", "1/2", "3/4", or "all of the item". The scale used and the estimated amount of each item consumed are shown in Table 4.

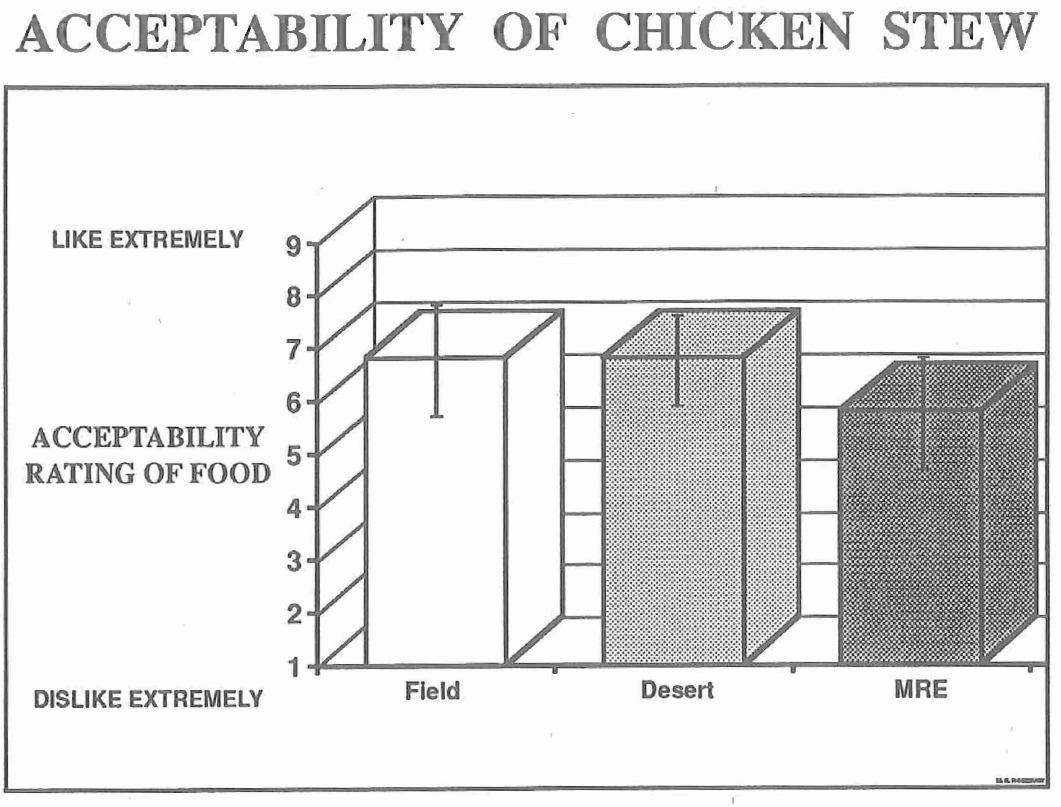

FIGURE 4. Acceptability ratings of chicken stew by package

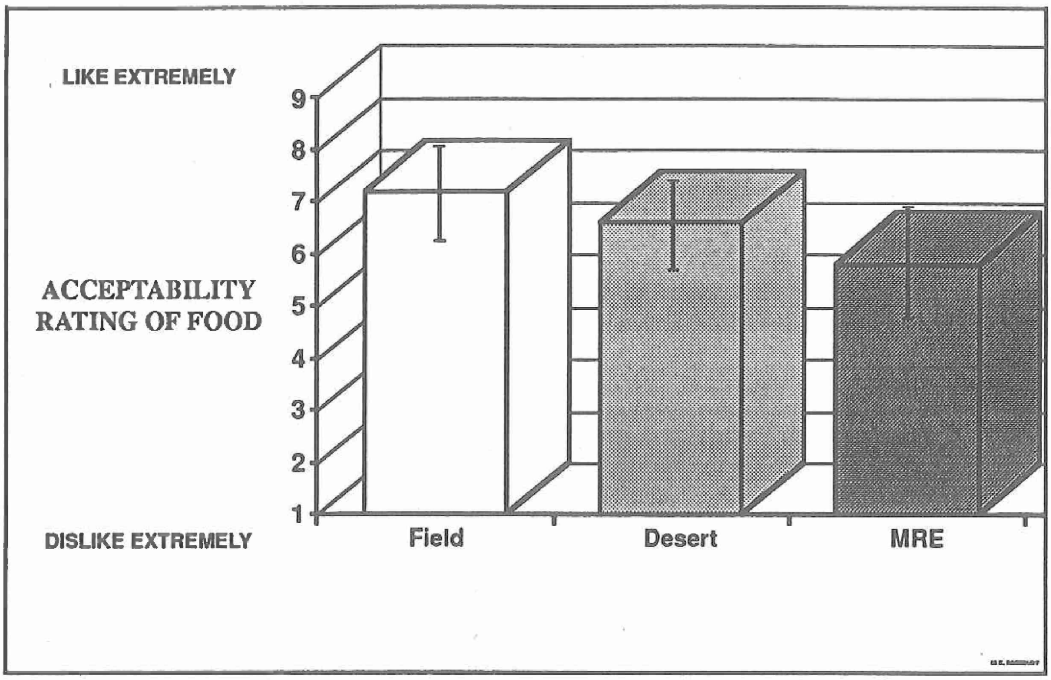

FIGURE 5. Acceptability ratings of orange beverage by package

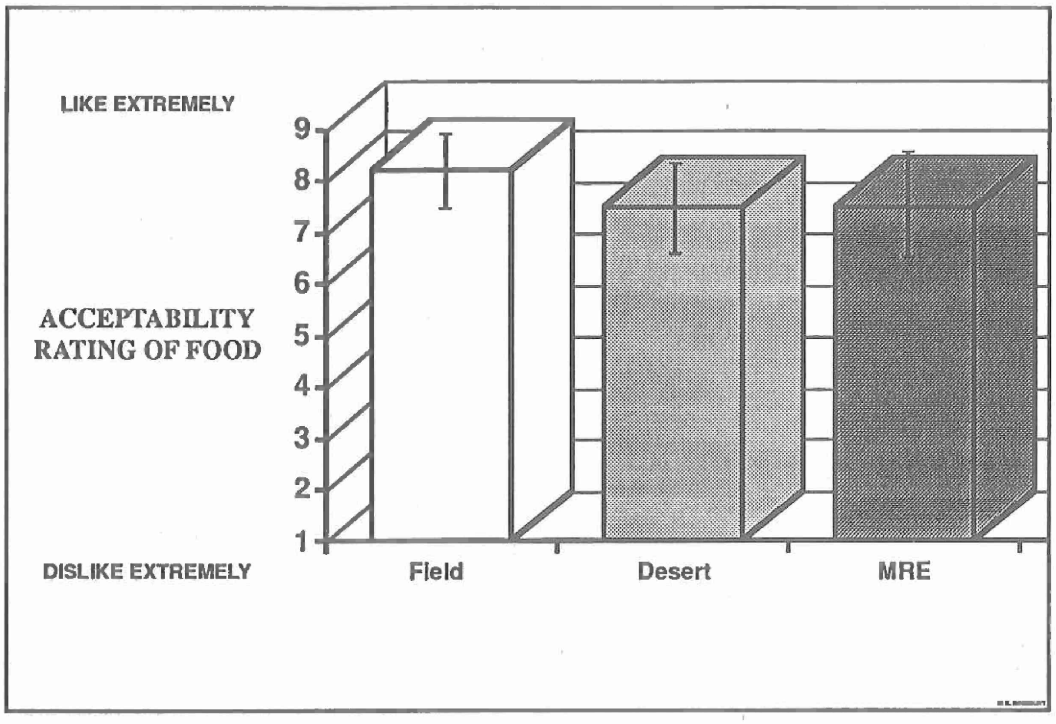

FIGURE 6. Acceptability ratings of Tootsie Rolls™ by package

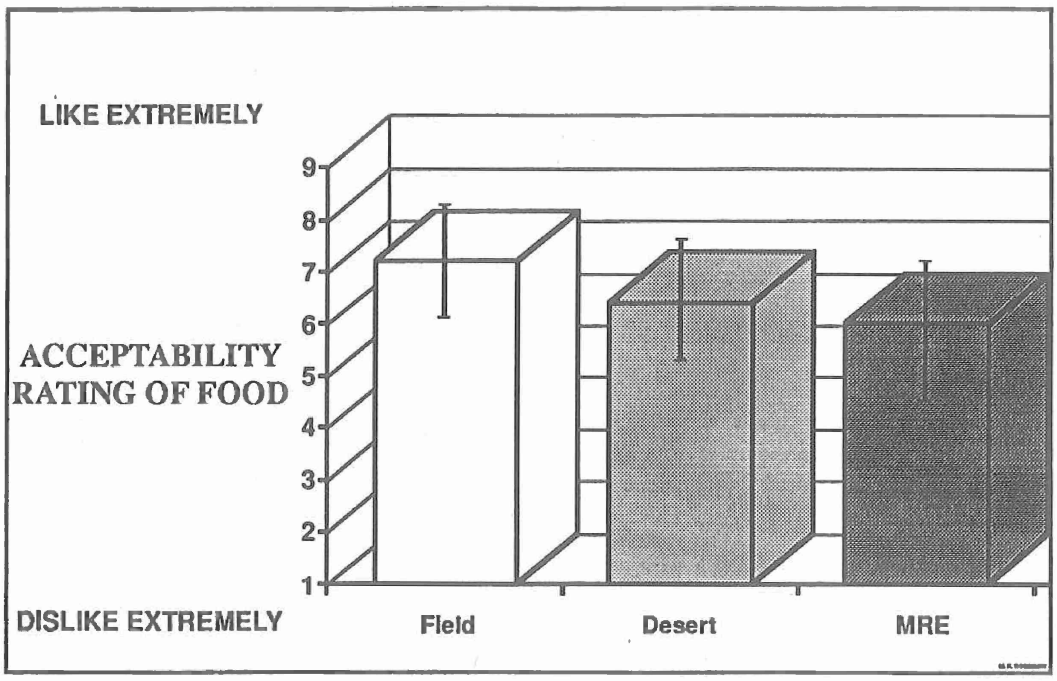

FIGURE 7. Acceptability ratings of Charms™ by package

Table 4. Self-reported Consumption Ratings

A TASTE (.05)	1/4 (.25)		1/2 (.50)		3/4 (.75)		ALL (1.00)
	Field		Desert		MRE		ANOVA RESULTS
	(N=53)		(N=69)		(N=70)		
	X	SD	X	SD	X	SD	
Chicken Stew	.80	.32	.81	.29	.80	.32	N.S.D.
Peaches	.95	.16	.97	.12	.95	.19	N.S.D.
Orange Beverage	.72	.42	.71	.40	.60	.46	N.S.D.
Tootsie Roll™	.93	.24	.79	.36	.86	.32	N.S.D.
Chocolate-Oatmeal Cookie	.90	.27	.88	.27	.95	.20	N.S.D.
Peanut Butter	.72	.38	.63	.39	.68	.41	N.S.D.
Coffee	.39	.44	.37	.44	.41	.46	N.S.D.
Pouch Bread	.89	.26	.78	.34	.90	.26	F(2,189)=3.75*
	*Field - Desert						
	*MRE - Desert						
	NS MRE - Field						
Charms™	.72	.40	.42	.41	.63	.44	F(2,189)=8.74*
	*MRE - Desert						
	*Field - Desert						
	NS MRE - Field						

* Significant difference, $p \leq .05$

A one-way ANOVA revealed significant differences in reported consumption of the pouch bread and Charms™. Post hoc comparisons indicated that soldiers eating from both the MRE and Field packages ate significantly more than the soldiers eating from the Desert package ($p \leq .05$). The MRE and Field groups did not differ from each other. These differences are displayed in Figures 8 - 9.

Although the consumption data show few effects among groups, the data are confounded by the fact that the mean hunger ratings (Table 2) and time since last food intake (Table 1) for the MRE group was significantly greater than for the other two groups.

Table 5 shows ratings of the perceived quality of the combination of foods contained in their meal package by the three test groups. The scale used and the results can be seen in Table 5.

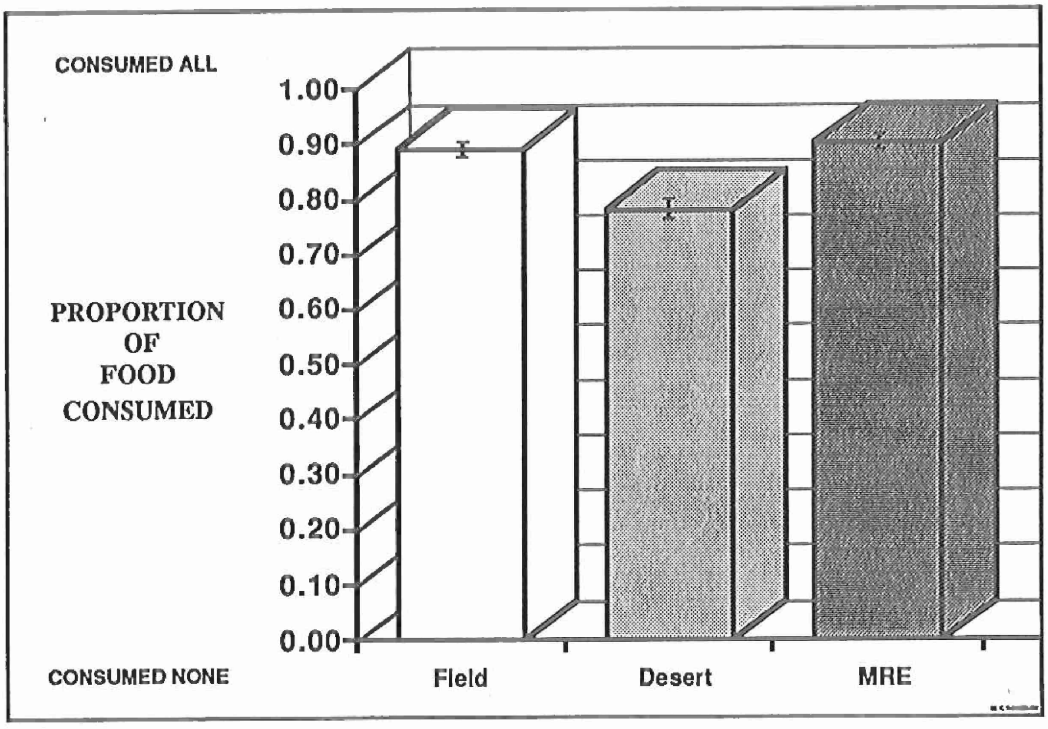

FIGURE 8. Consumption ratings for pouch bread by package

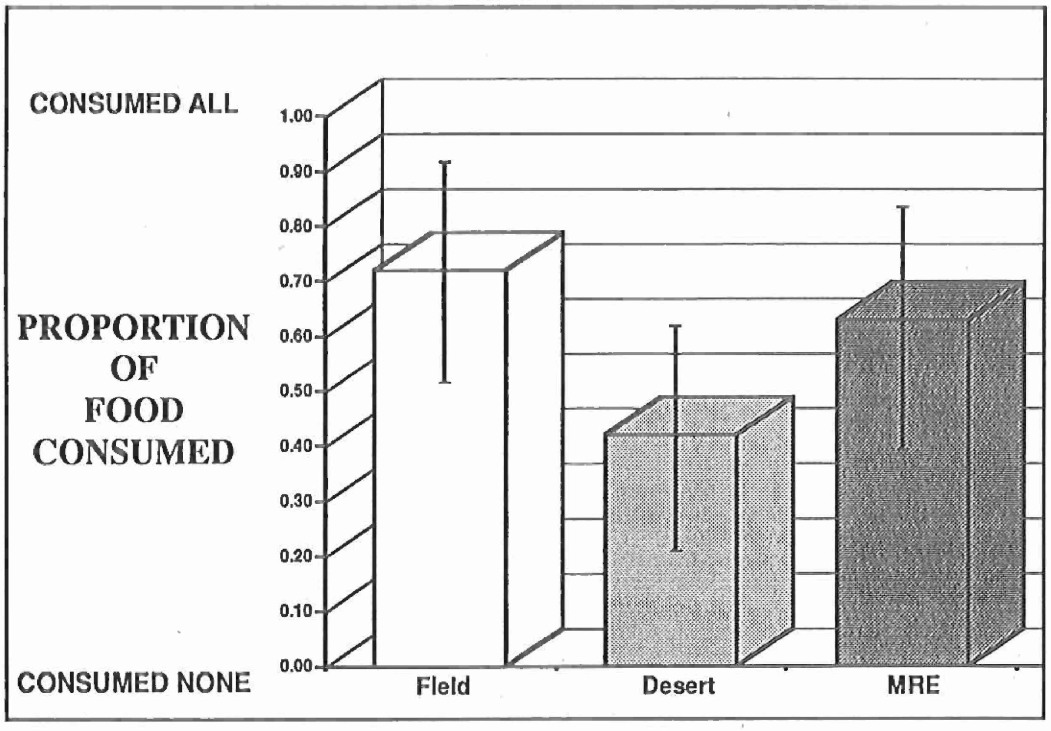

FIGURE 9. Consumption ratings for Charms^{TM} by package

Table 5. Ratings of Quality of Food Combinations

Very Poor 1	2	3	4	5	6	Excellent 7

Field (N=53)		Desert (N=69)		MRE (N=70)		ANOVA RESULTS
X	SD	X	SD	X	SD	
5.4	.95	5.1	1.13	4.6	1.3	F(2,189)=6.89**

** Significant difference, $p \leq .001$

It is interesting to note that when rating the quality of the "combination of foods" that the soldiers received, significant differences, $p \leq .001$, were seen between the standard MRE and the other two packages. The post hoc tests indicated the Field and Desert groups perceived the quality of the combination of foods in the packages to be significantly better than the MRE group, $p \leq .05$, in spite of the fact that the item combinations were identical.

Flameless Ration Heater Ratings: After consuming lunch, soldiers were asked a series of questions regarding the flameless ration heater. Soldiers rated their opinions of how the flameless ration heater affected the flavor of the chicken stew. The scale used and the results obtained can be seen in Table 6.

Table 6. Heater Effect on Chicken Stew

TASTED NO BETTER 1	2	3	4	5	6	7	8	TASTED MUCH BETTER 9

Field		Desert		MRE		ANOVA RESULTS
X	SD	X	SD	X	SD	
6.5	2.6	6.2	2.3	4.7	2.8	F(2,187)=9.79**

** Desert - MRE
** Field - MRE
NS Desert - Field

** Significant difference, $p \leq .001$

A One-Way ANOVA conducted on the ratings showed a significant difference among package conditions at the $p \leq .001$ level. Post hoc tests showed that ratings were significantly higher in the Field and Desert package groups than in the MRE group $p \leq .05$. These data, while somewhat surprising, suggest that the positive effects of an improved package design can extend to a variety of other perceptual aspects of the ration system, including nonfood items contained in the packaging.

In an open-ended question pertaining to the use of the heater for heating their entree, some soldiers in the MRE group stated that their heaters took too long to heat and failed to make the food hot enough. A few said they would prefer to be able to use the heaters more than once and to be able to heat their coffee with them. A few others stated that in most situations they don't have time to sit and heat their food while on a mission. A few in the Desert package group stated that their heaters took too long to heat and felt that the food was not hot enough. However, the majority of soldiers in all three groups made more positive comments about the heaters. They were very pleased with the ability to heat their food, since they felt that hot food tastes better. A few commented that the heater made the chicken stew taste better. They thought the heater was easy to use, less dangerous since it had no flame, that the instructions were simple to read, and that it was not "messy" to use. Some also felt the heaters were convenient, very portable, and easy to dispose. They felt that the ability to heat their food with such a compact, easy to use heater was extremely beneficial.

Soldiers were also requested to rate their overall opinion of whether they liked or disliked the flameless ration heater. Ratings, results, and scale used are shown in Table 7.

Table 7. Flameless Ration Heater Ratings

DISLIKE EXTREMELY		DISLIKE MODERATELY		NEITHER LIKE NOR DISLIKE		LIKE MODERATELY		LIKE EXTREMELY
1		2	3	4	5	6	7	8	9

Field		Desert		MRE		ANOVA RESULTS
X	SD	X	SD	X	SD	
8.5	.91	7.7	1.8	6.6	2.1	F2,188)=18.45**

**Desert - MRE
**Field - MRE
**Field - Desert

** Significant difference, $p \leq .001$

One-way ANOVAs conducted on soldiers' opinions of the flameless ration heater showed a significant difference between the three groups at the $p \leq .001$ level. Post hoc comparisons revealed that ratings differed between the MRE group and both the Field and Desert groups, and also differed between the Field and Desert group, $p \leq .05$. Again, the heater was rated the lowest by the soldiers in the MRE package group.

Soldiers were asked to rate whether they liked using the flameless ration heater to heat their chicken stew by answering "yes" or "no". A cross-tabulation by package type indicated that 100% of the Field group soldiers liked the flameless ration heater, 87% of

the Desert group liked it, and 74.3% of the MRE group liked it. A separate cross-tabulation by package type indicated the majority of soldiers (97.4%) from all three groups felt the instructions on the heaters were understandable.

To identify any problems the soldiers had when using the flameless ration heater, they were asked to rate each of several potential problems with the heater. The results are shown in Table 8.

Table 8. Problems with the Heater

	NOT A PROBLEM	SLIGHT PROBLEM	MODERATE PROBLEM	LARGE PROBLEM
	Percent	Percent	Percent	Percent
FIELD				
ADDING WATER	98.1	1.9	0	0
TOO HOT TO HANDLE	77.4	22.6	0	0
NOT HEATING UP	94.3	5.7	0	0
SMELL DURING HEATING	90.6	9.4	0	0
WATER SPILLING	92.5	7.5	0	0
RESIDUE OR FOAM PRODUCED	92.5	7.5	0	0
DESERT				
ADDING WATER	97.1	2.9	0	0
TOO HOT TO HANDLE	84.1	15.9	0	0
NOT HEATING UP	71.0	17.4	2.9	7.2
SMELL DURING HEATING	78.3	14.5	7.2	0
WATER SPILLING	91.3	8.7	0	0
RESIDUE OR FOAM PRODUCED	95.7	4.3	0	0
MRE				
ADDING WATER	88.6	11.4	0	0
TOO HOT TO HANDLE	85.7	12.9	1.4	0
NOT HEATING UP	80.0	10.0	7.1	2.9
SMELL DURING HEATING	94.3	4.3	1.4	0
WATER SPILLING	78.6	14.3	5.7	1.4
RESIDUE OR FOAM PRODUCED	95.7	4.3	0	0

Subjects in the Field group found no major problems with the heaters, although 22.6 percent felt that the pouches were too hot to handle after heating. Twenty-seven percent of the soldiers in the Desert group claimed their heaters did not heat properly and 21.7 percent said there was an odor produced during heating. Twenty percent of those in the MRE package group found they had problems

with the heaters not working, 21.4 percent claimed they had water spillage, and 11.4 percent had slight problems adding the water.

At the conclusion of the questionnaire soldiers expressed the following comments regarding the heaters:

"Issue to infantrymen as soon as possible."
"Add them to the meal."
"Good for warming hands and feet."
"Open the main course from the side instead of the top."
"Make the heater a little wider."
"Should be used especially during winter field problems."
"Good job and ideas."
"Would be nice if it heated coffee too."
"The contents should be on the pouch."
"I used the heater in Saudi and it improved the taste."
"The instructions should tell you how long it takes to cool down."
"Congratulations to whoever did it."

Ratings of Packages and Package Attributes: After rating the meal and the flameless ration heaters, soldiers were issued a second questionnaire that addressed perceptions of the packaging systems. Primary areas of interest for each package were appearance, functionality, and design. Using a 9-point semantic differential scale, soldiers were asked to rate each package on characteristics related to these areas.

Listed below are the specific attributes evaluated in each category for the outer packages:

APPEARANCE	FUNCTIONALITY	DESIGN
quality	durability	novelty
attractiveness	ease of opening	labelling appeal
color	ease of storage	appropriateness
interest	reusability	
	retention of freshness	
	waterproof characteristics	
	compactness	
	communication of contents	
	informativeness	

Inner packaging was evaluated on the following attributes: ease of identification of items on labels, label appeal, appeal of transparent packages, and appeal of foil packages.

Ratings of each of the attributes for the three packaging systems are shown in Table 9.

Table 9: Attribute Ratings by Package
(N-192)

ATTRIBUTES	MEAN RATINGS AND ANOVA RESULTS						
Numerical Scale Points: 1/9	Field X	Field SD	Desert X	Desert SD	MRE X	MRE SD	ANOVA RESULTS
Poor/excellent quality *MRE- Field * MRE - Desert NS Field - Desert	7.9	1.6	7.5	1.5	6.9	1.7	F(2,189)=6.58*
Unattractive/attractive * MRE - Field * MRE - Desert NS Field - Desert	6.9	1.7	7.2	1.6	5.2	2.3	F(2,189)=20.60*
Dull/interesting * MRE - Field * MRE - Desert NS Field - Desert	6.7	2.0	6.8	1.8	4.5	2.4	F(2,189)=26.50*
Ordinary/unique * MRE - Field * MRE - Desert NS Field - Desert	6.2	2.5	6.8	1.7	4.8	2.5	F(2,189)=14.36*
Not colorful/colorful * MRE - Field * MRE - Desert NS Field - Desert	5.9	2.6	6.1	2.3	4.0	2.6	F(2,189)=15.36*
Inappropriate/ideally suited * MRE - Field * Desert - Field NS MRE - Desert	7.9	1.3	6.7	2.2	6.8	2.0	F(2,185)=6.96*
Inexpensive/Expensive	4.8	2.6	5.8	2.2	5.2	2.1	N.S.D.
Not informative/ informative *MRE - Desert *MRE - Field NS Field - Desert	7.5	1.7	7.2	1.9	5.6	2.3	F(2,118)=17.73*
Hard to store/ easy to store * MRE - Desert * MRE - Field * Desert - Field	7.5	1.7	6.4	2.1	5.5	2.6	F(2,185)=12.32*

Table 9: Attribute Ratings by Package (cont)
(N-192)

ATTRIBUTES	MEAN RATINGS AND ANOVA RESULTS						
Numerical Scale Points: 1/9	Field X	Field SD	Desert X	Desert SD	MRE X	MRE SD	ANOVA RESULTS
Hard to read/easy to read *MRE - Field NS MRE - Desert NS Field - Desert	8.2	1.2	8.0	1.4	7.5	2.0	F(2,188)=3.05*
Not reusable/reusable	7.4	2.2	7.4	1.9	6.8	2.4	N.S.D.
Not waterproof/ waterproof	7.7	1.9	7.7	1.7	8.0	1.5	N.S.D.
Hard to open/ easy to open	8.3	1.2	7.9	2.0	7.8	2.0	N.S.D.
Fragile/durable	7.8	1.5	8.1	1.0	7.8	1.4	N.S.D.
Bulky/compact *MRE - Desert *MRE - Field *Desert - Field	7.4	1.9	6.4	2.0	5.3	2.7	F(2,189)=13.70*
Does not retain/ retains freshness	7.6	1.7	7.7	1.5	7.2	1.8	N.S.D.
Does not communicate/ communicates contents well *MRE - Field *MRE - Desert NS Field - Desert	7.5	1.5	7.7	1.6	6.7	2.0	F(2,189)=6.97*
Unsuitable name/ suitable name	7.4	1.8	6.9	2.3	6.5	2.4	N.S.D.
Items not easy to identify on labels/ easy to identify	8.1	1.6	8.1	1.4	7.5	1.9	N.S.D.

Table 9: Attribute Ratings by Package (cont)
(N-192)

ATTRIBUTES	MEAN RATINGS AND ANOVA RESULTS						
Numerical Scale Points:	Field		Desert		MRE		ANOVA RESULTS
	X	SD	X	SD	X	SD	
1/9							
Labelling does not make food appealing/makes food more appealing	6.4	2.0	5.9	2.4	4.9	2.4	F(2,187)=6.45*
* MRE - Desert							
* MRE - Field							
NS Field - Desert							
See-through packages unappealing/appealing	7.5	2.0	7.4	1.5			N.S.D.
Foil packages unappealing/appealing	6.9	2.3	5.7	2.7			F(2,188)=13.09*
* Desert - Field							
Inner packages unappealing/appealing					4.6	2.3	

*Significant difference, $p \leq .05$

Note: The inner packages in the MRE condition were the same as those found in standard MRE's, i.e., dark brown pouches with black lettering written with generic names. Both the Field and Desert inner packages had see-through and foil packages with two different kinds of labels; therefore, no ratings appear for the MRE group on the above two attributes.

ANOVAS conducted on the package attribute ratings showed significant differences on many attributes. In comparison to the Field and Desert packages, the MRE package was perceived as having poorer quality, being unattractive, less interesting, ordinary, less colorful, not informative, harder to store, harder to read, bulkier, not communicating contents well, and having labels that did not make the food appealing. It was also perceived as being less appropriate for field use when compared to the Field package. These attribute ratings are displayed in Figures 10 - 22.

A factor analysis was also conducted to identify dimensions underlying the responses to the individual attributes. The results are presented in Table 10.

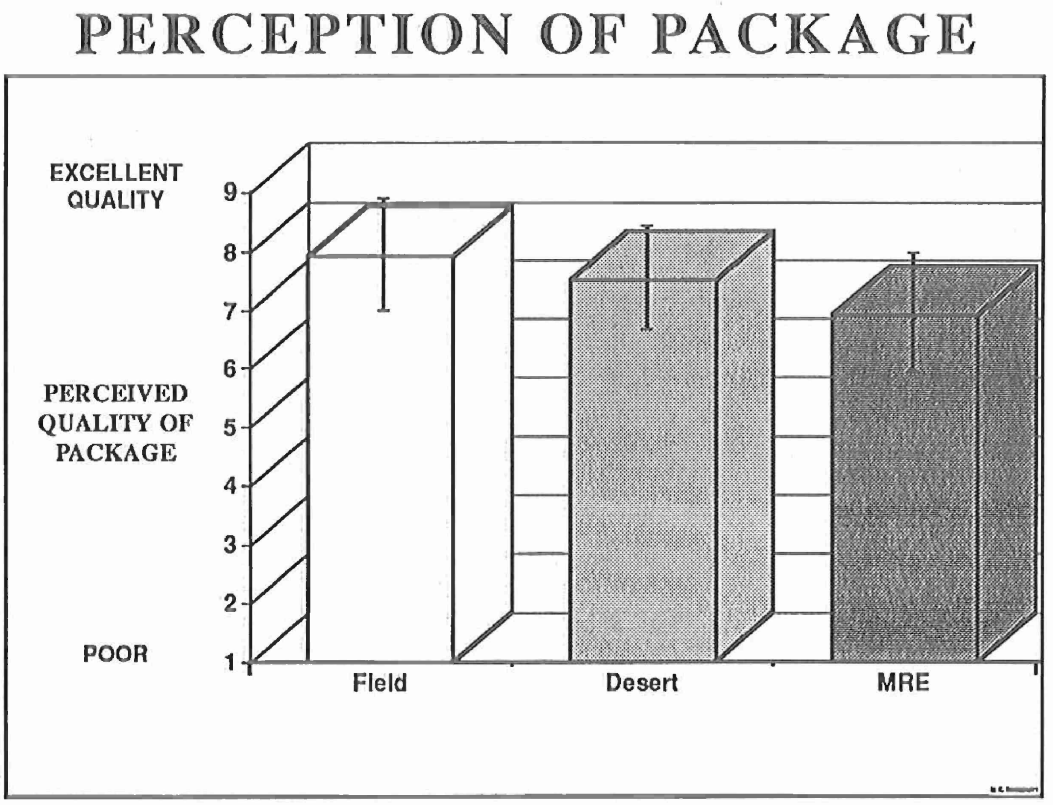

FIGURE 10. Mean ratings of packages for "perceived quality"

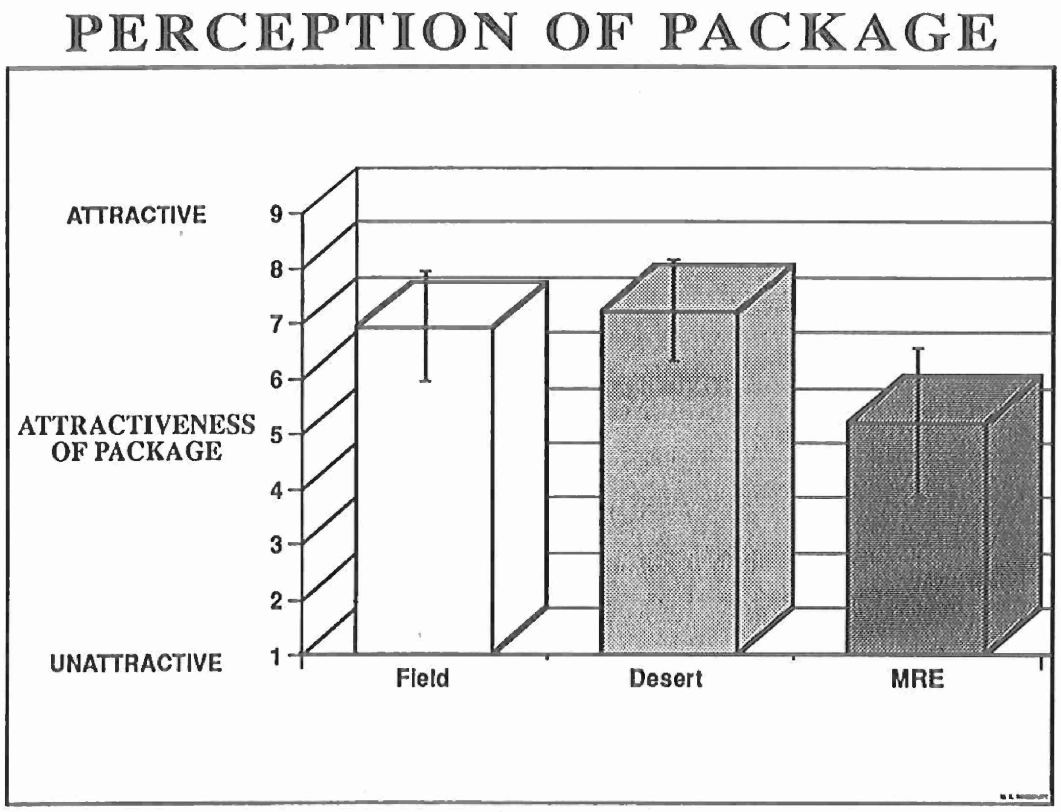

FIGURE 11. Mean ratings for "attractiveness"

PERCEPTION OF PACKAGE

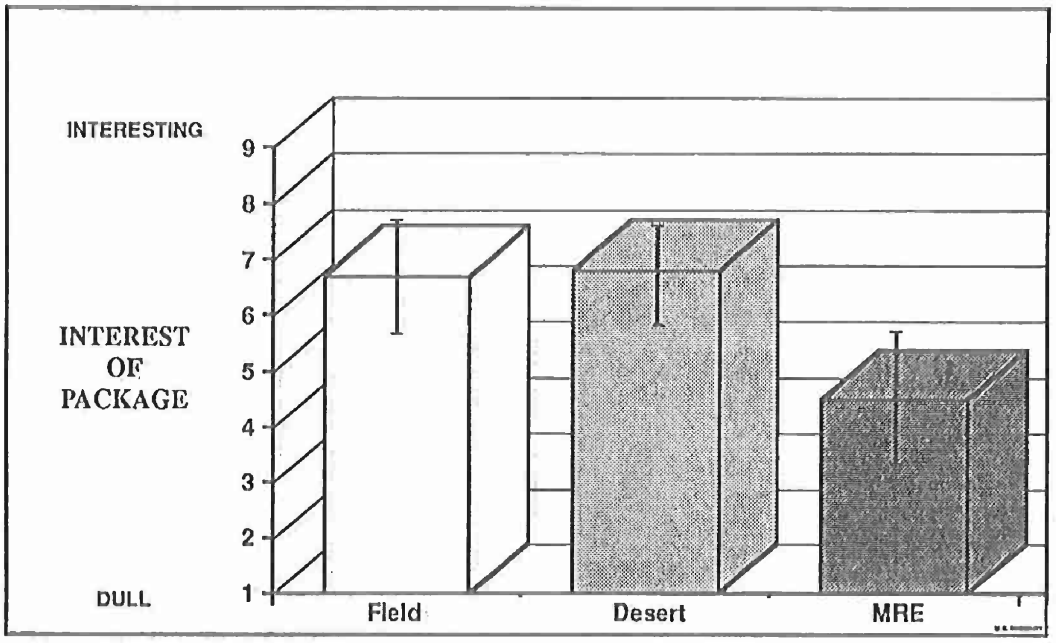

FIGURE 12. Mean ratings of package "interest"

PERCEPTION OF PACKAGE

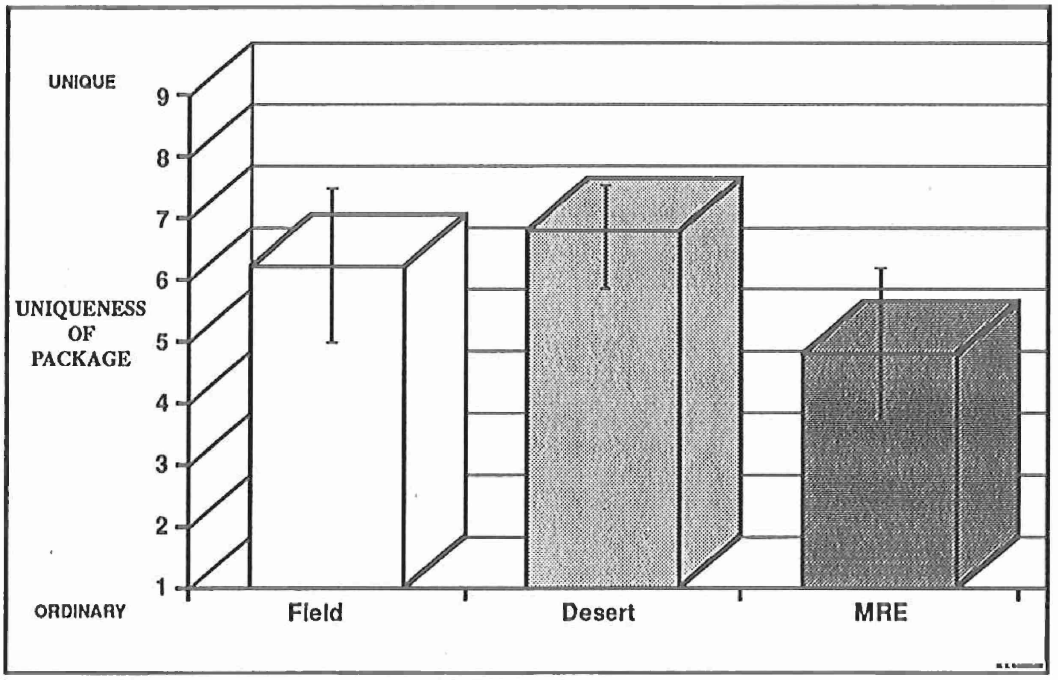

FIGURE 13. Mean ratings for "uniqueness"

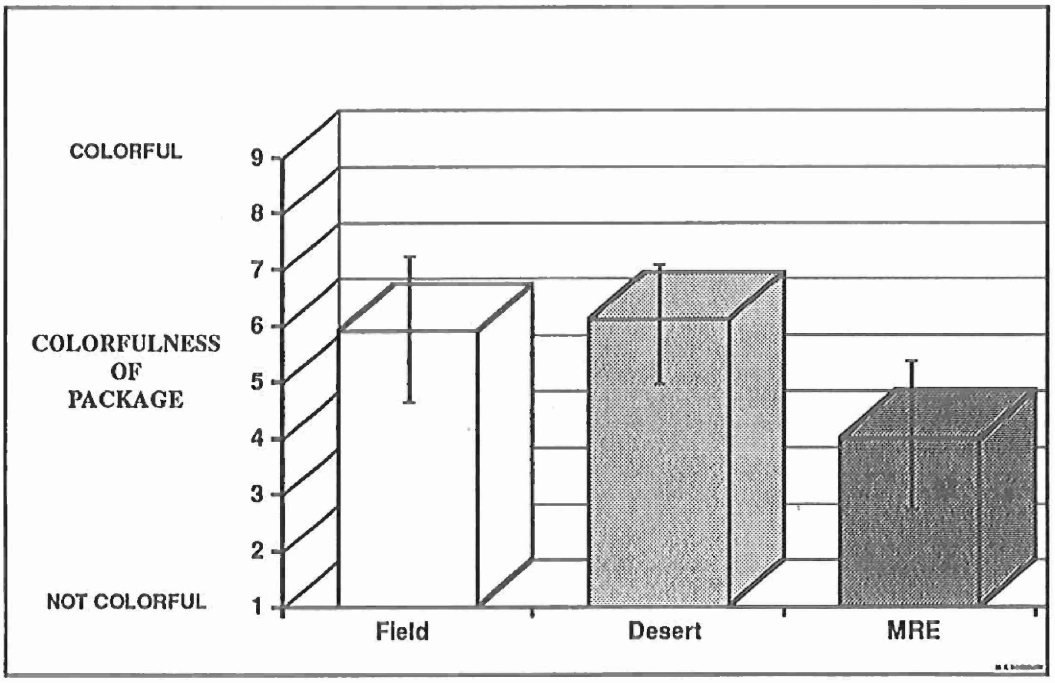

FIGURE 14. Mean ratings of "colorfulness"

PERCEPTION OF PACKAGE

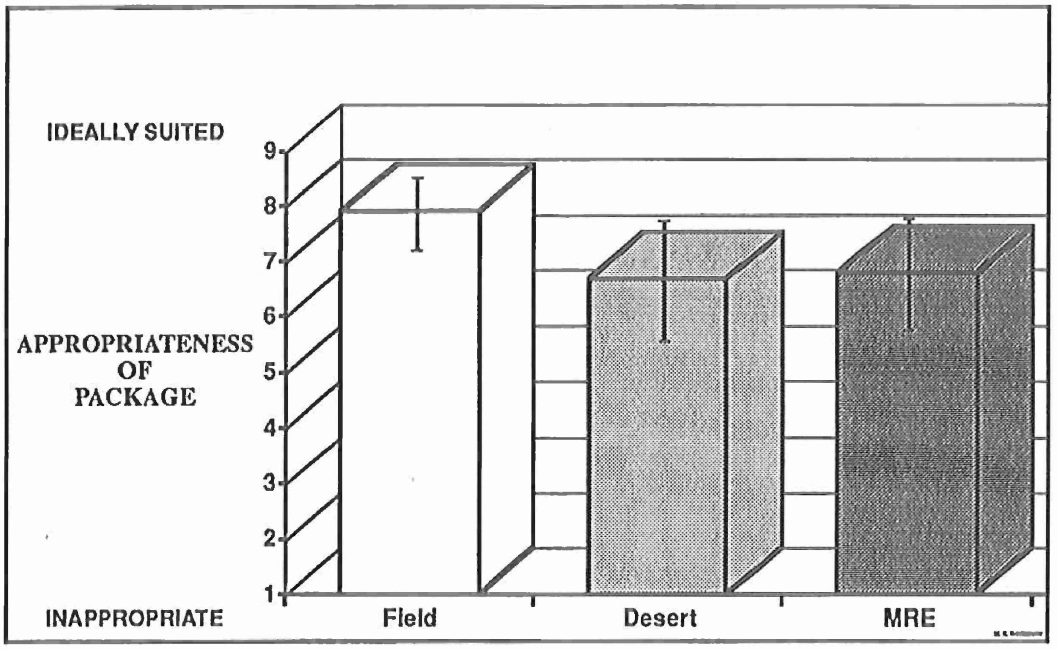

FIGURE 15. Mean ratings of "suitability for military use"

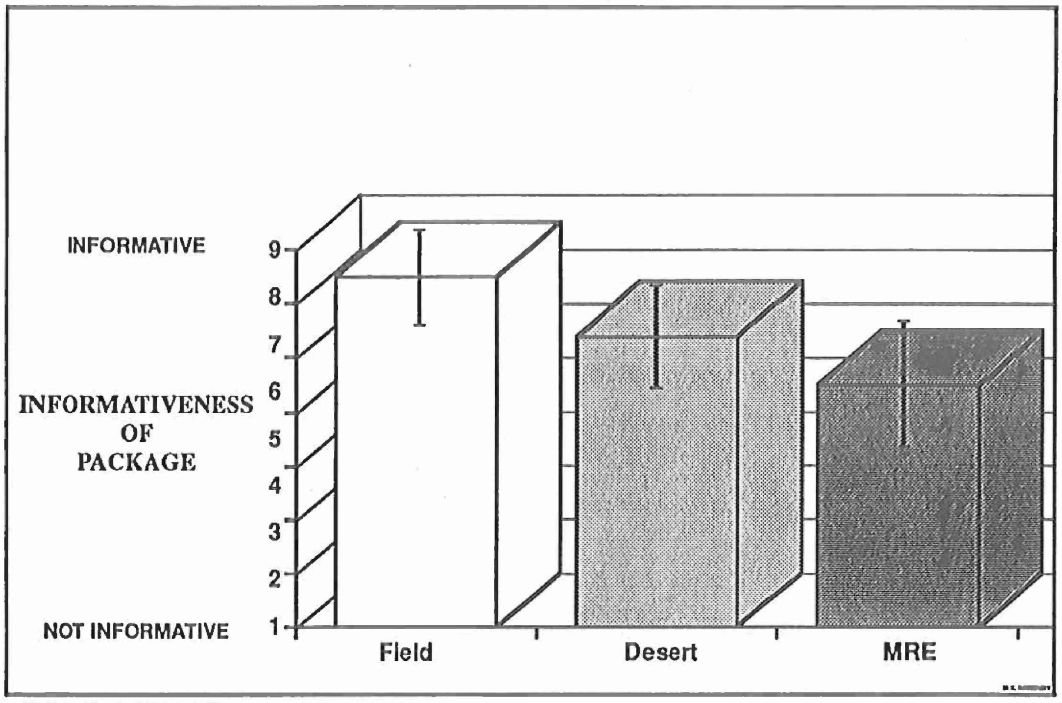

FIGURE 16. Mean ratings of "informativeness"

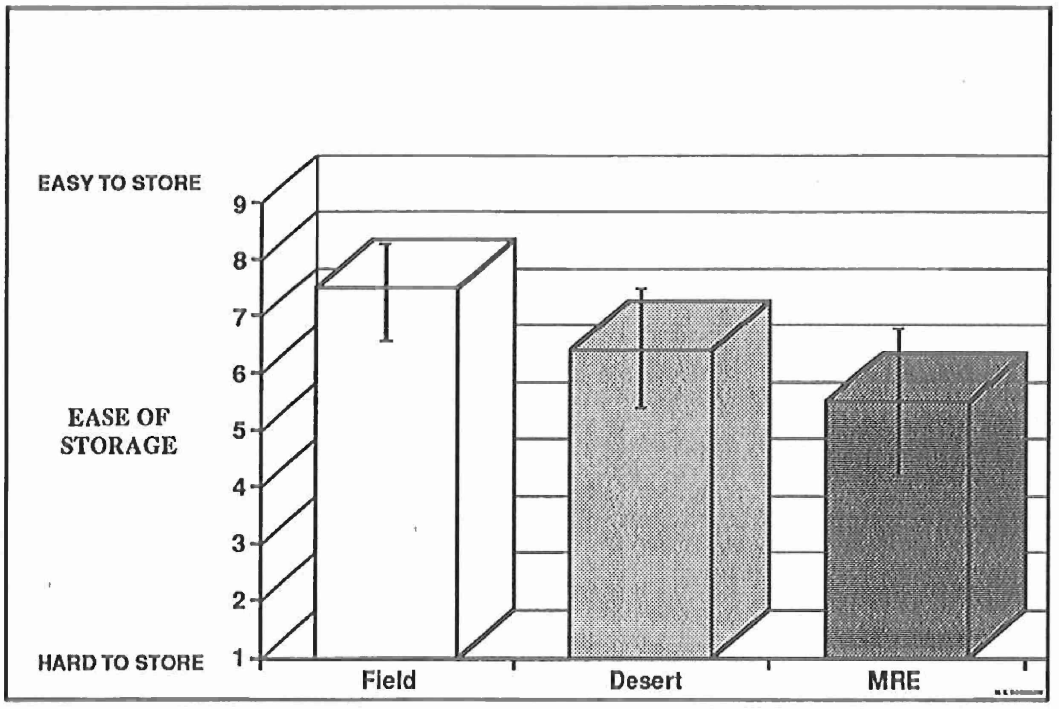

FIGURE 17. Mean ratings for "ease of storage"

FUNCTIONALITY OF PACKAGE

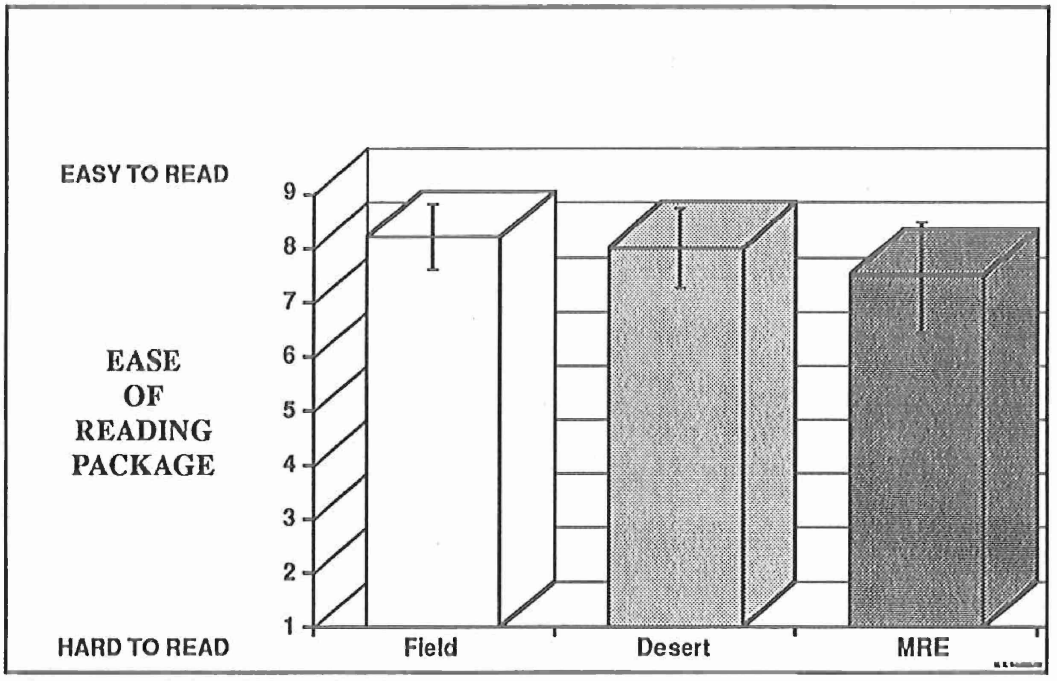

FIGURE 18. Mean ratings for "ease of reading"

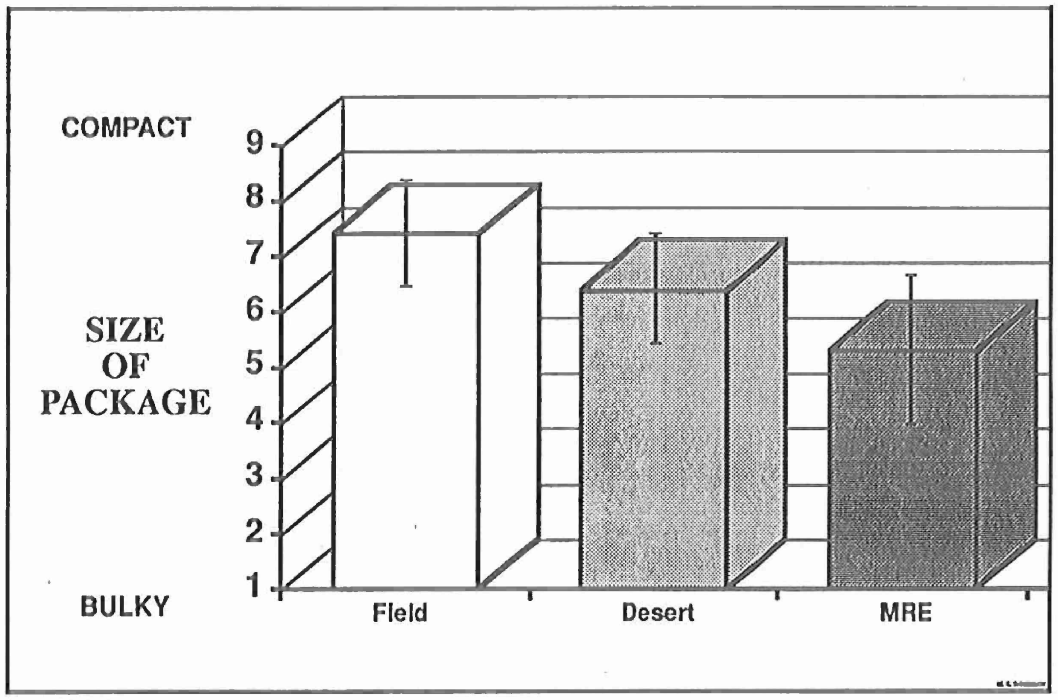

FIGURE 19. Mean ratings for "compactness"

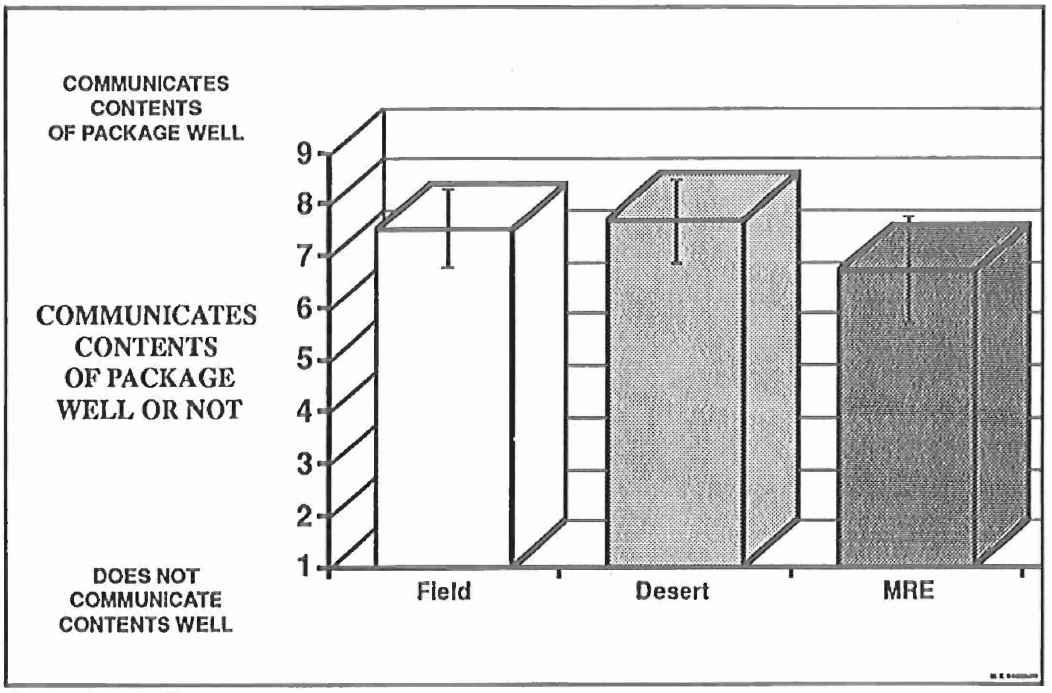

FIGURE 20. Mean ratings for "communication"

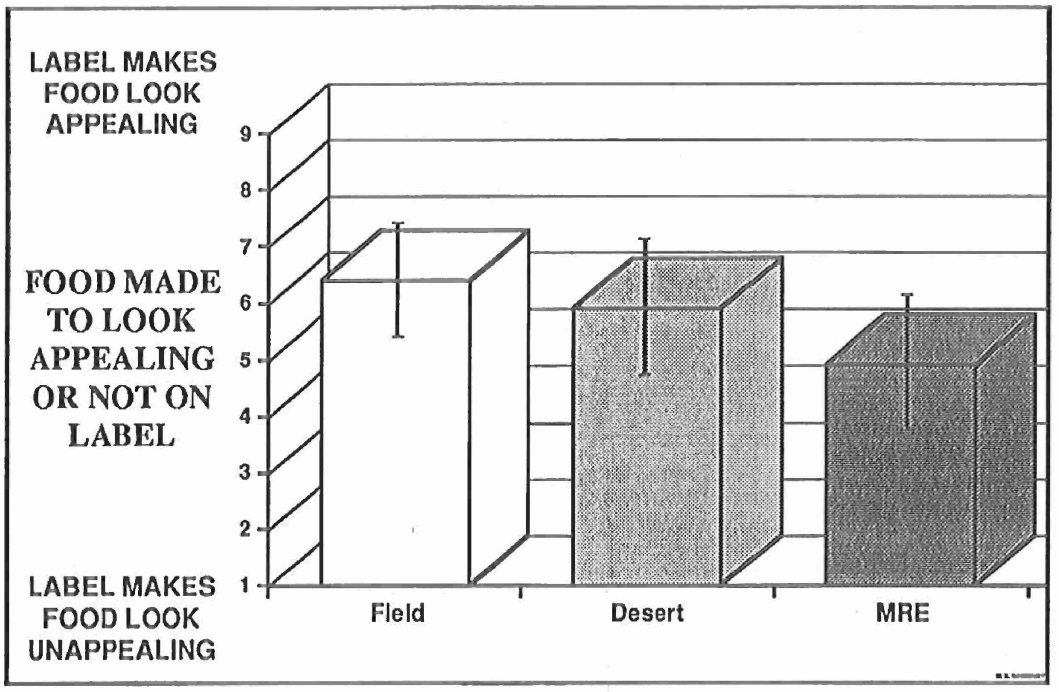

FIGURE 21. Mean ratings on the influence of labelling on food appeal

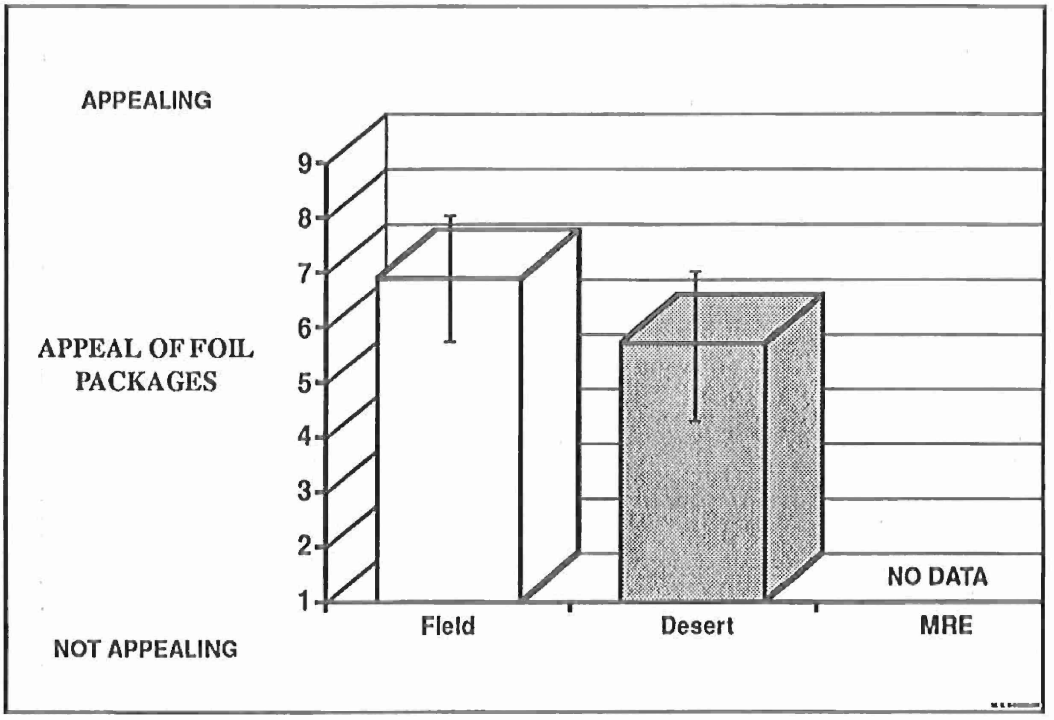

FIGURE 22. Mean ratings on the appeal of foil inner packages in the Field and Desert packages

Table 10. Factor Analysis of Packaging Attributes

FIELD

Factor	% of Variance
1	41.6
2	10.4
3	8.4
4	5.9
5	5.1

Factor 1 FUNCTIONALITY	Factor 2 APPEARANCE	Factor 3 PACKAGE QUALITY
Easy to read	Colorful	Durable
Retains freshness	Unique	Easy to store
Communicates well	Interesting	Quality
Suitable name	Attractive	Compact
Easy to open	Reusable	Attractive
Waterproof	Informative	
Informative		

Factor 4 INNER PACKAGING	Factor 5
Labelling made food appealing	See-through packages appealing
Items easy to identify on labels	Expensive
Inner package appealing	
See-through packages appealing	
Ideally suited for military use	

DESERT

Factor	% of Variance
1	36.4
2	10.7
3	7.0
4	6.0
5	5.6
6	4.7

Factor 1 FUNCTIONALITY	Factor 2 APPEARANCE	Factor 3 PACKAGE QUALITY
Retains freshness	Unique	Items easy to identify on labels
Reusable	Interesting	Communicates contents well
Waterproof	Colorful	Quality
Easy to open	Attractive	Suitable name
Easy to read	Informative	Easy to read
		Attractive

Table 10. Factor Analysis of Packaging Attributes (cont)

DESERT (cont)

Factor 4
EASE OF USE
Compact
Easy to store
See-through packages appeal
Durable

Factor 5	Factor 6
INNER PACKAGING	MILITARY UTILITY
Inner packages appealing	Expensive
Labelliing makes food appealing	Ideally suited for military use

MRE

Factor	% of Variance
1	33.5
2	13.7
3	8.4
4	6.2
5	5.1

Factor 1	Factor 2	Factor 3
APPEARANCE	FUNCTIONALITY	EASE OF USE
Interesting	Retains freshness	Easy to open
Unique	Communicates contents well	Reusable
Colorful	Items easy to identify on labels	Easy to read
Attractive	Suitable name	
Informative	Easy to read	
Inner packages appealing	Durable	

Factor 4	Factor 5
MILITARY UTILITY	INNER PACKAGING
Quality	Labelling made food appealing
Ideally suited for military use	Inner packages appealing
Expensive	

On all three package designs, two dimensions stand out: functionality and appearance. The perceptions of the packages are further defined by a third dimension: "package quality" for the Field and Desert packages, and "ease of use" for the MRE package. The latter may be the result of having had a ziploc closure on the MRE package, which is not present on the currently fielded MRE pouch.

In a series of open-ended questions, soldiers commented on their preferences for alternative structural packaging designs. Several of the soldiers thought that having a lengthwise opening across the outer package would be advantageous, since it would make items more accessible. Some soldiers felt they would be less apt to get food on their hands, therefore making it more sanitary. However, a few thought that if the opening was longer the package would not be as secure, possibly causing things to fall out more easily.

Soldiers in all three groups reacted very favorably to the ziplock closure on the packages. They felt that having a reusable pouch would be advantageous since they would be able to save food and store other items such as letters, maps, papers, and personal belongings. They thought it had practical appeal, since it provided them with easy access and had other uses/advantages. These uses/advantages included: easy opening, improved waterproof characteristics, retention of freshness, resealability, increased sanitation, and easy trash storage. Soldiers stated they would reuse the package and would store the following items: uneaten food, snacks, items requiring protection from water, personal items such as underwear, socks, t-shirts, gloves, papers, maps, ammunition, shaving equipment, toiletries, cigarettes, letters, headphones, and trash.

Across all three groups, 183 soldiers (95.3 percent) approved of the idea of having a tear strip to open the package, as it would provide them with an easy opening feature. They felt that a double seal would give them extra security and more assurance that the pouch had not been violated. It would also provide better waterproofing characteristics, as well as easier access at night and in cold weather. A few felt that it would be much easier to open with a tear strip. They felt this would be a welcome change from having to use a knife to open the bag. A small percentage expressed some negative comments. These solders thought the pouch might be opened accidentally, the string could break, and when the string is torn off and discarded it could leave a trail signal.

Chi square analyses showed no significant differences among groups for the following package features: opening across side of package, reusability of outer package, tear strip above ziplock, and the purchase of packages in a camping store. Package design features received more positive than negatives responses across all three groups. However, more soldiers in the MRE package group responded negatively than in the other two groups when asked if they would purchase their package in a camping store.

When soldiers were asked if the name FIELD BREAK appealed to them, 51 out of 70 (72.9 percent) in the MRE package group said "no". The remaining 19 said "yes". The proportion of negative responses was significantly higher than those in the other two package groups, indicating the soldiers found the name FIELD BREAK, when associated with the standard MRE package, to be less appealing than the other two groups of soldiers who had it associated with an

entirely new package design. In the other two groups, 62.3 percent of the soldiers rating the Field package and 47.1 percent rating the Desert package found the name appealing. There were no significant differences in percent responses between the Field and Desert groups.

Those who found the name FIELD BREAK appealing, said it was "interesting", "eye catching", and sounded like it had a "civilian ring" to it. They said the name gave a different, more positive meaning to the MRE, making it sound better and more appetizing. They believed it did not sound generic, and told them what was actually happening, i.e. "You're in the field taking a break." It made them relate to the name in the field, since they felt they would be able to relax and eat. The name was appealing and conveyed a positive image to them. More negative comments were given by the MRE group. A few of them felt the name did not make the contents, or the taste of the food, any better. Some thought the name didn't matter since it's still an MRE. They felt that since they usually eat on the move, the name is not appropriate. A few others said that FIELD BREAK meant coming in from the field, not being in the field. Those in the other two groups also commented that they usually "do not get a break in the field", that the name "makes no difference" to them, they "don't care what it's called", and they're "more interested in the food" than the name.

To identify what kind of a product might be inside the package called FIELD BREAK when no other clues were provided, soldiers were asked to give free associations to the name. Some associated the name with snack foods, camping snacks, health food, beverage, magazines, comic books, games, toilet paper, something relaxing, hammock, pillow, first-aid kit, tobacco, and Walkman™. It's interesting to note they associated the name with things that were relaxing to them and that they do when they can take a break in the field.

Other things soldiers felt should be included on the food labels for each product include the following, in order of importance: calories, ingredients, nutritional information, fat, carbohydrates, salt content, cholesterol, item contents, vitamins, jokes, and trivia questions.

The scale used and results obtained when comparing the outer and inner packages to those of the MRE package are shown in Table 11 and 11a.

Table 11. Comparison of Outer Package to Current Package Type

OUTER PACKAGE NOT AS GOOD AS PRESENT RATION PACKAGING					OUTER PACKAGE MUCH BETTER THAN PRESENT RATION PACKAGING			
1	2	3	4	5	6	7	8	9

Field		Desert		MRE		ANOVA RESULTS
X	SD	X	SD	X	SD	
7.7	1.7	7.8	1.3	7.0	1.9	F(2,189)=4.43**

*Field - MRE
*Desert - MRE
NS Field - Desert

Table 11a. Comparison of Inner Packages to Current Package Type

INNER PACKAGE NOT AS GOOD AS PRESENT RATION PACKAGING					INNER PACKAGE MUCH BETTER THAN PRESENT RATION PACKAGING			
1	2	3	4	5	6	7	8	9

Field		Desert		MRE		ANOVA RESULTS
X	SD	X	SD	X	SD	
7.3	1.9	6.6	2.3	5.7	1.6	F(2,189)=10.75**

*Desert - MRE
*Field - MRE
*Field - Desert
** Significant difference, p≤ .001
* Significant difference, p≤ .05

One-Way ANOVAS conducted on the comparison of outer and inner packages to the MRE package showed significant differences for both structures. Both the Field and Desert outer packages were preferred to the design of the MRE. The inner packages of the Field package were preferred to both the Desert and MRE inner packages, with the MRE rating the lowest. Since the only difference between the Field and Desert inner packages was the coloring on the label, it is possible that the beige coloring on the desert label was perceived to be too light compared to the dark lettering on the Field labels.

Chi Squares were conducted on some of the functionality attributes of the package pertaining to the name appeal, what products are associated with the name, and labelling information. These can be seen in Packaging Survey questions 8, 9, 10, and 11, in Appendix A. Significant differences were noted on the appeal of the name, and other information desired on the labels.

When soldiers who were evaluating the MRE package were asked if there was any other information they would like to see on the labels for each food item, 57 out of 70 (81.4 percent) said "no". The remaining 13 said yes, they'd like more information on the labels. Again, the proportion of negative responses was

significantly higher than from the Desert group. Forty two (61.8 percent) of the soldiers evaluating the Desert package did not feel the need for more information on the labels. The remaining 26 wanted more information. The MRE package was significantly different for more labelling information from the Desert package and there were no significant differences found between the MRE and the Field package, or the Desert and Field packages.

A total of 110 soldiers (58.2 percent) thought they would purchase the packages with their own money if they saw them in a camping store. Compared to the newer package designs, there was a higher negative response in the MRE group (51.4%). In the MRE group, 48.6% said yes, compared to 66.7% in the Field group and 61.8% in the Desert Group.

To clarify the reasons that might influence their decision, soldiers wrote a series of positive and negative comments pertaining to purchasing the package. Reasons for buying the packaging include the following: The package was appealing, informative, something new to try, compact, small, lightweight, easy to carry, contains lasting food as well as a heater, which makes it easier than cooking food, and keeps the contents waterproof. There were more negative responses generated by the MRE group compared to the Field and Desert groups. The first reason for not buying the package was that they did not go camping. The packages were perceived to be too expensive and bulky looking. Fresh food, "real" food, canned food, and "junk" food were preferred by some for eating while camping. A few of the soldiers in the MRE group said they're tired of eating this food, and claimed they eat it for a living and don't want to eat it while having fun. Some others said they hate MRE's, they don't find them appealing, they're undesirable, and the packages don't tell them what's inside except the main meal. Others commented they prefer doing their own cooking, like to grill, like the taste of C rations more, and they want something nonmilitary.

CONCLUSIONS

The results of this study reveal that packaging designs can help communicate a more positive product message to soldiers. This can be accomplished by creating inner and outer packaging that is more appealing, featuring commercial-like graphics that communicate positive information and expectation for higher quality. The functionality of the packaging can be improved with a ziplock and tear-strip closure to facilitate convenience, easy opening, resealability, reusability, increased sanitation, waterproof characteristics, freshness, and trash storage. Packaging that is appealing, has beneficial information, and innovative structural elements can help encourage more positive attitudes as well as increase product usage.

When soldiers consumed the ration, the following items received higher ratings in the Field and/or Desert groups than in the MRE group: chicken stew, orange beverage, Tootsie Rolls™ and Charms™. These results can be interpreted to mean that

commercial-like packaging designs can have a positive influence on the acceptability of ration items.

The Field and Desert package designs also resulted in higher ratings in the following areas:

(1) The ratings of quality of food combinations were significantly higher in the Field and Desert groups than the MRE.

(2) The perceived effect of the flameless ration heater on the flavor of the chicken was significantly higher in the Field and Desert groups.

(3) Overall satisfaction with the flameless ration heater was also significantly higher in the Field and Desert groups.

(4) The Field and Desert packages were rated significantly higher in several packaging characteristics such as "more attractive", "interesting", "unique", "colorful", "ideally suited for military use", "informative", "easier to store", "easier to read", "more compact", "communicating contents well", and "having labelling that makes the food more appealing".

(5) Soldiers in all groups were extremely positive about the ziplock closure. They also liked the convenience of the tear strip opener and thought they definitely would reuse the outer packages.

(6) The Field and Desert packages rated significantly higher in comparison to current ration packaging than did the MRE package group.

(7) The name FIELD BREAK was much more appealing to the soldiers in the Field and Desert groups, as compared to the MRE package group.

By developing packaging with more appeal and functional innovations, that are convenience-oriented with easy opening and use features, the old image of military rations can be shifted to reflect a different and more positive image of the rations and help improve their acceptance and consumption by soldiers.

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APPENDIX A: Food Acceptance Questionnaire

Subj #_____

Name: _____

LUNCH SURVEY

Today we are conducting a survey of soldier's reactions to a different field ration. Your opinions are very important to us and we would appreciate honest answers. Your answers will be kept confidential. BEFORE eating the ration, please answer the following questions:

1. During what hour did you last eat? Between _____ and _____

2. Was it a snack or a full meal? Snack ○ Full meal ○

3. At the present time how hungry are you?

not at all hungry	slightly hungry	moderately hungry	very hungry	extremely hungry
1	2	3	4	5
○	○	○	○	○

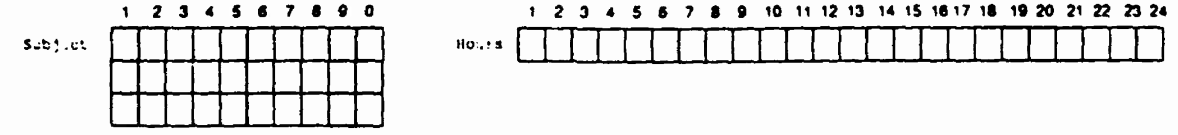
AFTER eating the ration, please answer the following questions:

4. Please use the scale below and fill in the circle that best describes your opinion of each item in the ration. Please taste each item.

disliked extremely		disliked moderately		neither liked nor disliked		liked moderately		liked extremely
1	2	3	4	5	6	7	8	9

	1	2	3	4	5	6	7	8	9
Chicken Stew	○	○	○	○	○	○	○	○	○
Peaches	○	○	○	○	○	○	○	○	○
Chocolate covered oatmeal cookie	○	○	○	○	○	○	○	○	○
Peanut butter	○	○	○	○	○	○	○	○	○

DO NOT WRITE BELOW THIS LINE



4. Please use the scale below and fill in the circle that best describes your opinion of each item in the ration. Please taste each item.

disliked extremely		disliked moderately		neither liked nor disliked		liked moderately		liked extremely
1	2	3	4	5	6	7	8	9

	1	2	3	4	5	6	7	8	9
Bread	○	○	○	○	○	○	○	○	○
Orange beverage	○	○	○	○	○	○	○	○	○
Coffee	○	○	○	○	○	○	○	○	○
Tootsie rolls	○	○	○	○	○	○	○	○	○
Charms	○	○	○	○	○	○	○	○	○

5. Please give your best estimate of how much you ate of each item by filling in the circle that represents that amount.

	a taste	1/4	1/2	3/4	all
Chicken stew	○	○	○	○	○
Peaches	○	○	○	○	○
Chocolate covered oatmeal cookie	○	○	○	○	○
Peanut butter	○	○	○	○	○
Bread	○	○	○	○	○
Orange beverage	○	○	○	○	○
Coffee	○	○	○	○	○
Tootsie rolls	○	○	○	○	○
Charms	○	○	○	○	○

6. Using the scale below please fill in the circle that best describes your opinion of the combination of foods that you ate.

very poor						excellent
1	2	3	4	5	6	7
○	○	○	○	○	○	○

7. Did you like using the Field Ration Heater to heat your chicken stew?

Yes ○ No ○

If yes, what did you like about it? _____

_____

If no, what did you dislike about it? _____

_____

8. Using the scale below, please fill in the circle that best describes your opinion of the effect that the heater had on the flavor of the chicken stew.

tasted no better								tasted much better
1	2	3	4	5	6	7	8	9
○	○	○	○	○	○	○	○	○

9. Using the scale below please fill in the circle that best describes your opinion of the Field Ration Heater.

disliked extremely		disliked moderately		neither liked nor disliked		liked moderately		liked extremely
1	2	3	4	5	6	7	8	9
○	○	○	○	○	○	○	○	○

10. Were the instructions on the ration heater package easy to understand and follow? Yes ○ No ○

If no, why not? _____

_____

11. What did you like most about the Field Ration Heater? _____

_____

12. Were any of the following a problem for you while using the FRH to heat the entree? Fill in ONE circle for each item.

	not a problem	slight problem	moderate problem	large problem
Adding water to bag	○	○	○	○
Too hot to handle	○	○	○	○
FRH not heating up	○	○	○	○
Smell produced during heating	○	○	○	○

	not a problem	slight problem	moderate problem	large problem
Water spilling out of plastic bag	○	○	○	○
Residue or foam caused by heating process	○	○	○	○
other (specify) _____	○	○	○	○

13. If there are any other comments that you would like to make concerning the Field Ration Heater please do so. _____

Thank you very much. Please remain seated as we would like to have you fill out another questionnaire.

APPENDIX B: Package Questionnaire

Subj #_____

Name: _____

PACKAGE SURVEY

Today we are conducting a survey of packaging designs for a different field ration. Your opinions are very important to us. Please be as honest as possible. Thank you.

1. The following words or phrases could be used to describe this field ration package. This package would cost no more than any other ration package. Please tell us how you feel the package looks by filling in the appropriate circle for each set of words or phrase below.

OUTER PACKAGE

Poor Quality								Excellent Quality
1	2	3	4	5	6	7	8	9
Unattractive								Attractive
1	2	3	4	5	6	7	8	9
Dull								Interesting
1	2	3	4	5	6	7	8	9
Ordinary								Unique
1	2	3	4	5	6	7	8	9
Not colorful								Colorful
1	2	3	4	5	6	7	8	9
Not informative								Informative
1	2	3	4	5	6	7	8	9

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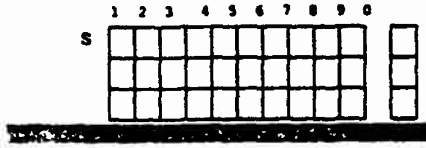

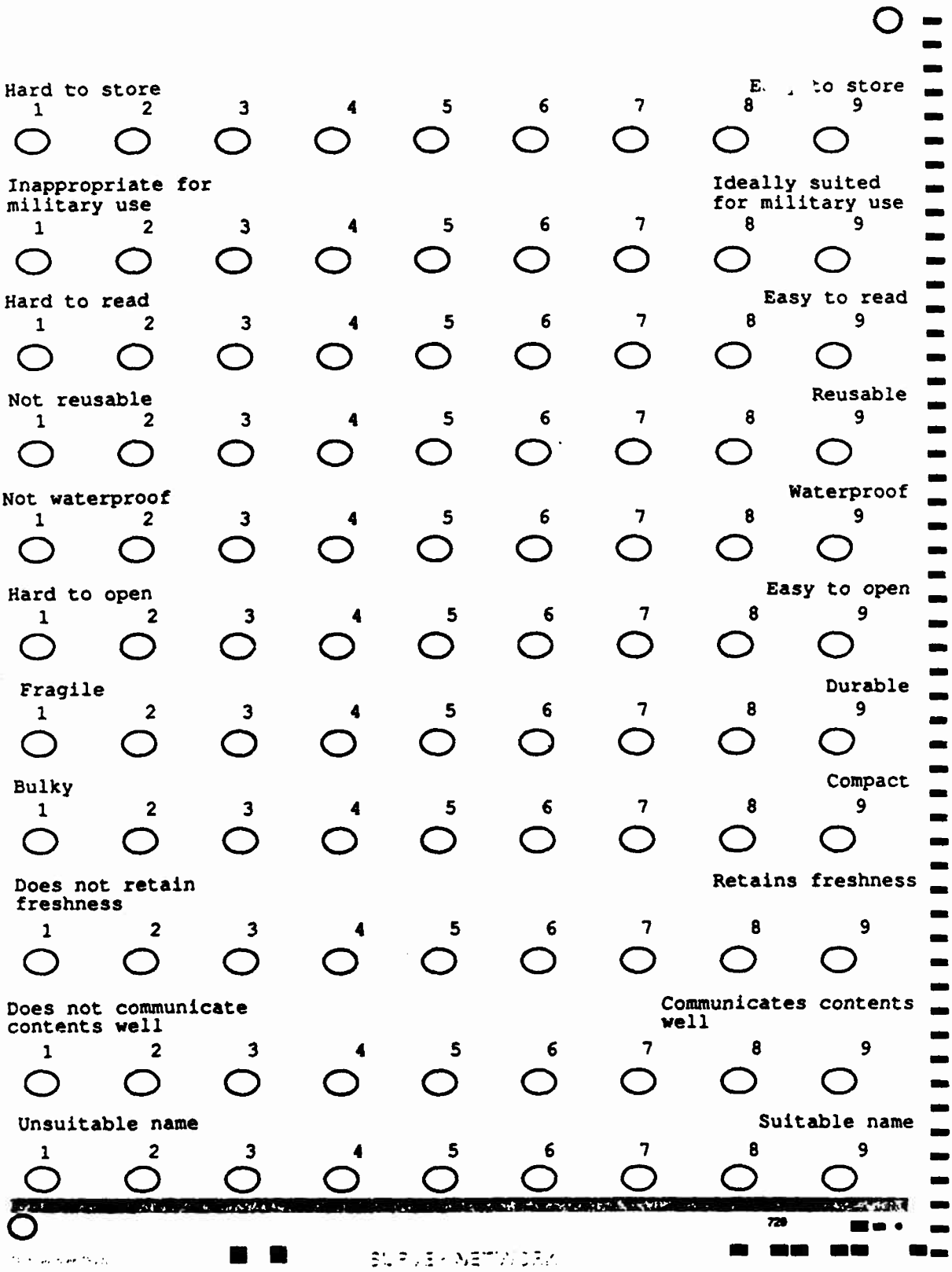
Hard to store
E. . to store
1 2 3 4 5 6 7 8 9
Inappropriate for military use
Ideally suited for military use
1 2 3 4 5 6 7 8 9
Hard to read
Easy to read
1 2 3 4 5 6 7 8 9
Not reusable
Reusable
1 2 3 4 5 6 7 8 9
Not waterproof
Waterproof
1 2 3 4 5 6 7 8 9
Hard to open
Easy to open
1 2 3 4 5 6 7 8 9
Fragile
Durable
1 2 3 4 5 6 7 8 9
Bulky
Compact
1 2 3 4 5 6 7 8 9
Does not retain freshness
Retains freshness
1 2 3 4 5 6 7 8 9
Does not communicate contents well
Communicates contents well
1 2 3 4 5 6 7 8 9
Unsuitable name
Suitable name
1 2 3 4 5 6 7 8 9

Inexpensive — Expensive

1	2	3	4	5	6	7	8	9
○	○	○	○	○	○	○	○	○

INNER PACKAGING

Items not easy to identify on labels — Items easy to identify on labels

1	2	3	4	5	6	7	8	9
○	○	○	○	○	○	○	○	○

Labelling did not make the food appealing to me — Labelling made the food appealing to me

1	2	3	4	5	6	7	8	9
○	○	○	○	○	○	○	○	○

Packages unappealing — Packages appealing

1	2	3	4	5	6	7	8	9
○	○	○	○	○	○	○	○	○

2. Would an opening on the long side of the outer package be more beneficial than across the top of the package? Yes ○ No ○

If yes, why?_____

If no, why not?_____

3. Do you like the reusable zipper lock pouch? Yes ○ No ○

If yes, why?_____

If no, why not?_____

4. Would you reuse the outer package?

Yes ○ No ○

If yes, what would you reuse if for?_____

_____

5. Would you like to see a tear strip, which is a string that opens the top of the package, above the zip lock for easy opening?

Yes ○ No ○

If yes, why?_____

_____

If no, why not?_____

_____

6. Using the scale below, please fill in the circle UNDER the number that best describes your opinion of the outer package compared to present ration packaging.

The outer package is not as good as present ration packaging								The outer package is much better than present ration packaging
1	2	3	4	5	6	7	8	9
○	○	○	○	○	○	○	○	○

7. Using the scale below, please fill in the circle UNDER the number that best describes your opinion of the inner packages compare to present ration packaging.

The inner packages are not as good as present ration packaging								The inner package is much better than present ration packaging
1	2	3	4	5	6	7	8	9
○	○	○	○	○	○	○	○	○

8. Did the name FIELDBREAK appeal to you?

Yes ○ No ○

If yes, why? _____

_____

If no, why not? _____

_____

9. If the name FIELDBREAK was on a product that had nothing else on the label, what do you think the product might be? _____

_____

10. Is there any other information that you would like to see on the labels for each food item? Yes ◯ No ◯

If yes, what? _____

_____

11. If you saw this pouch in a camping store, is it something that you might purchase? Yes ◯ No ◯

If yes, why? _____

_____

If no, why not? _____

_____

12. Finally, just a few questions for classification purposes only.

a. Are you Male ◯ Female ◯

b. How old are you? _____

c. Are you Married ◯ Single ◯

d. What is the last grade of school that you completed?

◯ High School

◯ Skilled Trade Training after High School

◯ Some College or Associates Degree

◯ Bachelor's Degree

◯ Post-Graduate Degree(s)

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	1	2	3	4	5	6	7	8	9	10
A										

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SURVEY NETWORK™

e. What part of the country are you from?

- ○ Middle Atlantic (NY, NJ, PA)
- ○ East Noerh Central (OH, IN, IL, MI, WI)
- ○ East South Central (KY, TN, AL, MS)
- ○ West South Central (AR, LA, OK, TN)
- ○ Pacific (WA, OR CA, AK, HI)
- ○ New England (ME, NH, VT, MA, RI, CT)
- ○ West North Central (MN, IA, MO, ND, SD, NE, KS)
- ○ South Atlantic (DE, MD, DC, VA, WV, NC, SC, GA, FL)
- ○ Mountain (MT, ID, WY, CO, NM, AZ, UT, NV)
- ○ Other Territories, Possesions or Countries

f. What is your rank? (Fill in one circle and one box with grade.)

- ○ Enlisted
- ○ Warrant Officer 1 2 3 4 5 6 7 8 9 10 [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]
- ○ Officer

g. What unit are you in? _____

h. What is your MOS/RATING? _____

j. In the past three years, approximately how many field exercises have you participated in?

- ○ 1-3
- ○ 3-5
- ○ 5-10
- ○ 10 or more

k. How long have you been in the Army?_____

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M 1 2 3 4 5 6 7 8 9 10 11 [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

Y 1 2 3 4 5 6 7 8 9 0 [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

Thank you very much for participating. Your opinion is very important to us.